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The effect of anaerobic efficiency training on the skillful and tactical performance of young futsal players

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Abstract

The researchers aimed to investigate the impact of anaerobic efficiency exercises on the skillful and tactical performance of young futsal players. The study was conducted using an experimental approach with experimental and control groups, and a pre and post test was conducted. The research sample consisted of 20 players from two football clubs in Wasit Governorate. The researchers found that anaerobic efficiency training contributed to improving the skillful and tactical performance of the experimental group, and the use of training tools like Swiss balls and rubber ropes had a positive impact. The study also found that skill and planning exercises were effective in improving the skill and planning performance of the experimental group.

Keywords: Futsal coaches, tactical performance, Wasit Governorate, planning performance

Introduction

Futsal coaches and practitioners aim to enhance the game by focusing on the players' physical, skill, and planning preferences. They rely on sports training science to develop training programs that enable players to perform anaerobic muscle contractions rapidly, strongly, and repeatedly during the match. This anaerobic efficiency contributes to physical, skill, and planning development, as it leads to improved body control, speed, and agility during transitions between defense and attack. Therefore, coaches prioritize anaerobic efficiency exercises in their training programs to ensure that players have the physical and mental capacity to sustain high-level performance throughout the match (Hasan, 2021)^[2].

While observing youth futsal leagues and training units in Wasit province, the researcher noted that they lacked certain skills in futsal, which reflected on their inability to execute strategic performance well. Additionally, the players were weak in their ability to perform continuously strong and fast throughout the match. The researcher attributes this weakness to the training units' failure to include high-level skill-oriented exercises in their training programs. To address this issue, the researcher suggests that incorporating anaerobic efficiency training units that play a significant role in developing players' physical movement and enabling them to perform their skill and strategic duties based on their acquired physical abilities can improve their performance levels. The ultimate goal of this approach is to achieve better performance.

The research objectives

1. To develop anaerobic efficiency training programs for youth futsal players to improve their skill and strategic performance.
2. To investigate the impact of anaerobic efficiency training programs on the skill and strategic performance of youth futsal players.

The research hypothesis

1. There are statistically significant differences between the experimental and control groups in terms of skillful and tactical performance, with the experimental group outperforming the control group.
2. There are statistically significant differences between the pretest and posttest scores of the experimental and control groups in terms of skillful and tactical performance, with the posttest scores of the experimental group being higher than those of the control group.

Research methodology

In this study, the researcher employed an experimental methodology, utilizing a design consisting of experimental and control groups that underwent pre and post-tests. The research was conducted on players from youth football clubs in Wasit Governorate, comprising of 5 clubs with a total of 63 players. The sample was selected intentionally and consisted of 20 players from Al-Khajia and Al-Kut clubs in the youth category. Goalkeepers were excluded due to the different nature of their exercises, and some players were excluded for not attending training regularly. The experimental group comprised of 10 players from Al-Khajia Club, while the control group was represented by a sample from Al-Kut. Overall, the research sample accounted for 31.74% of the total population. Sports Club, numbering (10) players, and the research sample constituted (31.74%) of the research community.

Used devices

1. Electronic stopwatch (2) type (Casio).
2. Two (2) video cameras for the purpose of documentation.

Tools used

1. Measuring tape.
2. Football (12).
3. Whistle number (2)
4. Sticky tape.
5. Various stationery.
6. Barriers (20) of different heights.
7. Number (40) signs of different heights.

Sources of collecting information

- Arabic and foreign sources.
- International Information Network (Internet).
- Questionnaire form.
- Tests and measurements.
- Personal interviews (experts and specialists).

Tests used in the research

Skillful performance test

The skillful performance was evaluated by five futsal specialists - who are evaluated by watching them directly, and the tested player is given a rating out of 10.

Tactical Performance Test: (Abo-Elther, 2019) ^[3]

The purpose of the test: to measure the accuracy and speed of executing the tactical duty:

- Required tools: a soccer field - a soccer ball - signs - an adhesive tape to define the area - a stopwatch - (4) recorders.

Description of performance

Three players in the form of an inverted triangle, and each player stands in a specific area measuring (120cmX120cm) and as shown in Figure (2), as the work begins with handling from player (1) towards player (2), who must control the ball and handle it to Player (3) in the specified area, as player (3) puts down the ball and handles it to player (1) who moved towards him, and here player (1) plays the ball handling twice (double bus) with player (3), and moves on the side parallel to The side line by rolling the ball a distance of (12m) towards a specific area to pass a cross ball to the area confined between the penalty point and the (6m) line to which the players (2, 3) moved and performed the intersection process when they entered the penalty area, after which player (2) scored directly

at the goal With the foot, or with the head, and after completing the implementation, the positions are exchanged between the players, and then the player has scored once, received, and delivered three times, and to give the performance of the exercise, and the required realism test, a defensive player was placed trying to cut the ball, knowing that the distance between the two squares (1, 2) is (16 m) and between (1, 3) is (16 m) as well, and between (2, 3) is (10 m).

Registration

Correct delivery and reception are awarded (2) points, and for scoring (5) points on either side of the goal post, and (2) points when scoring in the middle of the goal, with no point being counted when receiving, delivery outside the specified area, as well as failure to score, as is done Calculating the full time for executing the test, and accordingly the total score is calculated (3) attempts to receive, deliver, and one attempt to score, as shown in Figure (1).

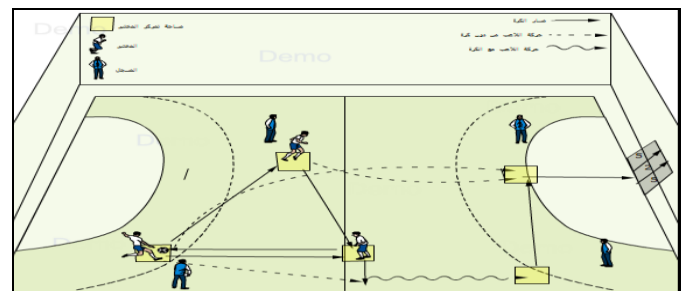


Fig 1: Demonstrates the method of applying the tactical performance test

Pre-Test

The pre-tests for the research sample were conducted on Saturday, 12/2/2022 at 4:00 pm, and accompanied by the assistant work team in the closed Jihad Hall. The tactical performance tests were conducted, and then the skillful performance of the players was evaluated.

Used exercises

The researcher developed a set of anaerobic efficiency exercises based on a review of scientific sources and previous studies. These exercises were implemented over a period of 8 weeks in 24 training units at the Jihad hall, with three sessions per week on Sundays, Tuesdays, and Thursdays. The exercises were tailored to the experimental group, taking into account the age and training stage of each player. Each exercise was designed to last no longer than 2 minutes, with the intensity being adjusted for each player's capabilities. The exercises involved physical, skillful, and tactical training, using equipment such as the Swiss ball, rubber ropes, medicine balls, weights, and agility ladder. The high-intensity interval training method and the repetitive training method were used, with the intensity starting at 80% and progressing up to 100% during the special preparation period and with load formation (1:2). The best time to perform each exercise or maximum heart rate was used to determine the required intensity. The rest periods were also calculated based on the pulse rate and time. The experimental group received these anaerobic efficiency exercises, while the control group did not participate in any specific training program.

Post-tests

After completing the exercises during the application of the experiment, the post-tests for the research sample will be conducted on Sunday, 17/5/2022, accompanied by the

assistant work team in the Jihad Hall, as it included the tactical test and the evaluation of skillful performance according to the conditions of the pre-tests.

Statistical means: The researcher used the statistical bag (SPSS) to treat the data statistically.

Presentation, analysis and discussion of results

Table 1: It shows the arithmetic mean and standard deviations between the results of the pre and post-tests in the skill performance and the tactical performance of the experimental group.

Post-test		Pre-test		Unit	Statistical parameters variants	
ع±	س	STDEV	Median			
1.907	8.267	2.207	5.800	Degree	Skill performance	
0.843	13.400	1.028	15.150	min	Time	tactical performance
0.788	8.800	0.788	6.800	Degree	Accuracy	

Table 2: It shows the difference of the arithmetic mean, its standard deviation, the calculated (T) value, and the result of the differences between the results of the pre and post-tests in the skill performance and the tactical performance of the experimental group.

Sig	The level of confidence			DEVSC	Statistical parameters variants	
		Value T	F.DIST			
sig	0.002	4.429	0.537	2.467	Skill performance	
sig	0.001	4.583	0.381	-1.750	time	tactical performance
sig	0.000	6.708	0.298	2	Accuracy	

Significant below significance level > (0.05) and degree of freedom (9).

Presenting the results of the pre and post-tests in the skillful and tactical performance of the two control groups.

Table 3: It shows the arithmetic mean and standard deviations between the results of the pre and post-tests in the skill performance and the tactical performance of the control group.

Post-test		Pre-test		Unit	Statistical parameters variants	
STDEV	median	STDEV	Median			
1.207	7.030	2.397	5.167	Dgree	Skill performance	
0.699	14.400	0.714	15.200	min	time	tactical performance
0.823	7.700	0.667	7.250	Dgree	Accuracy	

Table 4: It shows the difference of the arithmetic mean, its standard deviation, the calculated (T) value, and the result of the differences between the results of the pre and post-tests in the skill performance and the tactical performance of the control group.

sig	The level of confidence			DEVSC	Statistical parameters variants	
		Value T	F DIST			
sig	0.004	4.384	0.419	1.863	Skill performance	
sig	0.041	2.916	0.274	-0.800	time	tactical performance
sig	0.262	1.197	0.376	0.450	Accuracy	

Significant below significance level > (0.05) and degree of freedom (9).

Discussion

Skillful performance

The experimental group's skillful performance improved significantly, as shown in Tables 1.2. Initially, the group lacked the necessary skillful capabilities to meet the demands of futsal football's fast-paced and unpredictable nature. Therefore, the researcher designed anaerobic efficiency exercises that combined both physical and skillful aspects, aiming to achieve specific muscle contractions required for anaerobic efficiency. The exercises involved various futsal skills, such as ball handling, scoring, cutting, camouflaging, and deception, both with and without the ball (Mahmoud, 2014). The complexity of the exercises increased by linking different futsal skills, as the skillful performance of futsal football relies on players' ability to develop their motor skills for neuromuscular compatibility with performance. Skillful performance requires continuous and ongoing training to enable players to effectively face their opponents, control the ball during matches, tackle, dribble, pass, deceive, score from

different distances, and perform with speed, strength, and accuracy. (Hassan & Hassan, 2013) ^[5] (Mahmoud, Learning and Basic Skills in Football, 2014, p. 66).

Tactical Performance

Tables (3.4) show that the experimental group has excelled in the post-test than in the pre-test and in favor of the post-test, due to the fact that the nature of the exercises used in the training units contained many diverse tactical exercises that added to the players the ability to perform attacks quickly and accurately Two heights. Since "the tactical performance requires a good level of basic skills and motor abilities" (al-Rubaie, 2015) ^[4], therefore, the researcher focused in his exercises on the skillful performance, but it was a compound exercise within the tactical exercises.

The researcher also attributes this difference to the nature of the tactical exercises that were under the time of anaerobic efficiency, and that these exercises were similar to the game situations in terms of the level of the players' skill and

physical capabilities, including passing and receiving, the continuous exchange of positions between the players and ending the attack at high speed, as well as the accuracy of the termination, and these exercises have formed programs. Several kinetics of the player reflected positively on his performance, as the researcher emphasized the repetition of the exercises, because “repetition of tactical exercises that are similar to playing in particular can shorten the time of the player’s realization of the situations, and it increases his ability to perform rapid and accurate tactical performance.” (Damad, 2000) [1].

Conclusions and Recommendations

Conclusions

1. The anaerobic efficiency exercises contributed to raising the level of skill performance and tactical performance of the experimental research group.
2. The superiority of the experimental group over the control group in the post-tests is due to the anaerobic physical and tactical skills training and the nature of its application by using the training tools represented by the Swiss ball, rubber ropes, and others.
3. The use of skillful and tactical physical exercises has a significant impact on raising the level of skill and tactical performance of the experimental group.
4. Anaerobic efficiency exercises contributed significantly to raising the level of skillful performance and tactical performance of young futsal players.
5. Compound anaerobic efficiency exercises (physical skill) were reflected in the level of tactical performance of the players.

Recommendations

1. The need to employ anaerobic efficiency exercises in the training curricula for young players because of their effective contribution to the development of players in terms of skill performance and tactical performance, which in turn will be positively reflected on the final level of the player.
2. Young players need to raise the level of skillful performance and tactical performance for them, as it is an important pillar for building the player properly.
3. The need to use training tools during the application of anaerobic efficiency exercises, because they work to perform ideal muscle contractions in the players.

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